

A report for
CARTER JONAS (CAMBRIDGE)

In respect of
**Land at Coopersale Cricket Club,
Coopersale**

Technical Note

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1 INTRODUCTION

- 1.1 Transport Planning Associates has been commissioned by Carter Jonas (Cambridge) to provide transport planning advice in support of an allocation site for residential development on land at Coopersale Cricket Club in Coopersale, Epping Forest.
- 1.2 The site currently comprises of an open field used for the purposes of Coopersale Cricket Club. It is bounded to the east and south by mature hedgerows, to the west by Coopersale and Theydon Garnon Church of England Primary School and to the north by residential properties that front onto Brickfield Road.
- 1.3 Residential development at the allocation site would likely comprise of up to 19 dwellings. However, densification of the site could occur, meaning that an option of up to 28 dwellings may be possible.

Report Structure

- 1.4 This report is structured through the following chapters:
- Chapter 2: *Existing Situation*;
 - Chapter 3: *Access Options*;
 - Chapter 4: *Trip Generation and Distribution*; and
 - Chapter 5: *Summary*.

2 EXISTING SITUATION

- 2.1 This section of the report identifies the allocation site in the context of the local highway network and describes the existing travel opportunities for pedestrians, cyclists and passenger transport users. It also outlines the local services and facilities available in the vicinity of the site.

Site Location

- 2.2 The allocation site is located to the south east of Coopersale. The site currently comprises of an open field used for the purposes of the existing Coopersale Cricket Club. The site is bounded to the east and south by mature hedgerows, to the west by Coopersale and Theydon Garnon Church of England Primary School and to the north by residential properties that front onto Brickfield Road.

- 2.3 The location of the allocation site is presented in **Figure 2.1**.

Pedestrian Access

- 2.4 Adjacent to the site, Brickfield Road is private and no footways are currently provided on either side of the carriageway.
- 2.5 After approximately 50m, footways are provided on either side of Brickfield Road where the road forms part of the public highway. To the north, the footways provide access to existing residential properties on Brickfield Road and to the west, they provide access to Coopersale and Theydon Church of England Primary School before merging with the footways provided on either side of Coopersale Common.
- 2.6 The footways provided on either side of Coopersale Common are approximately 1.5m in width for the majority of their extent, and benefit from street lighting.
- 2.7 To the north along Coopersale Common, the footways provide access to a local bus stop after approximately 200m, before providing a route towards Coopersale Sub Post Office off Parklands, and The Garnon Bushes public house after approximately 430m and 480m respectively.
- 2.8 To the south along Coopersale Common, the footway provided on the eastern side of the carriageway terminates after approximately 10m. At this point there are currently no pedestrian crossing facilities provided to allow safe pedestrian movements to the footway on the western side of Coopersale Common.
- 2.9 The footway on the western side of Coopersale Common continues, and provides a route south toward St Alban Coopersale Church, where it subsequently terminates.

- 2.10 Pedestrian crossing provision within the vicinity of the site is considered to be good, with uncontrolled pedestrian crossings generally present where required. In addition, the residential character of the roads within close vicinity of the site offers opportunities for informal crossings to occur.

Cycle Access

- 2.11 No specific cycle infrastructure is provided within close vicinity of the site on Brickfield Road or Coopersale Common.
- 2.12 However, Coopersale Common is subject to a 30mph speed limit and benefits from a wide carriageway and good levels of forward visibility. In addition, intermittent on-street parking helps to slow average vehicle speeds and ensures that the route can be considered generally conducive to cycling.

Public Transport

Bus

- 2.13 The closest bus stop to the site is located on Coopersale Common approximately 380m to the northwest of the site. The bus stop is located on the eastern side of the carriageway and consists of a bus stop flag, bus shelter with associated seating and timetable information.
- 2.14 The location of this bus stop less than 400m from the allocation site means that it is within the desirable 400m walking distance stipulated in the Institution for Highways and Transportation's "*Providing for Journeys on Foot*". As such, access from the allocation from the site to local bus services is considered to be good.
- 2.15 Bus route numbers 214, 380, 381, 382 and 383 can be accessed from these bus stops providing connections from the site to key destinations such as Epping, Waltham Abbey and Harlow.

2.16 A summary of these local bus services is provided in Table 2.1.

Table 2.1 Summary of Local Bus Services

Service		Frequency		
Number	Route	Weekdays	Saturday	Sunday
380	Harlow – Tylers Cross – Epping	14 services per day First – 06:42 Last – 18:40	8 services per day First – 0800 Last – 18:23	No service
381	Harlow – Epping – North Weald – Greensted Green – Toot Hill			
382	Harlow – Tylers Cross – Epping – North Weald – Toot Hill			
383	Epping – Sumners Farm – Broadley Common – Tylers Cross - Harlow			
214	Waltham Cross – Epping	1 service per day at 08:05	1 service per day at 08:05	No service

1) *Bus route 383 also serves as a school bus, offering services toward local schools including Epping St John's Secondary School.*

2.17 This information presented in Table 2.1 shows that a number of bus services can be accessed from the nearby bus stop on Coopersale Common. Whilst relatively infrequent, the majority of the bus services run for extended periods during weekdays and therefore provide a useful connection to nearby settlements.

Rail

2.18 The nearest railway station to the site is Epping Underground Station, located approximately 3.5km to the southwest of the site in Epping. Epping Underground Station forms part of the London Underground Central Line and provides a service towards Ealing Broadway Station. The service stops at a number of key destinations including London Liverpool Street, Tottenham Court Road, Oxford Circus and Shepherd's Bush, and allows connection to the wider London underground network.

- 2.19 Details of the underground services available from Epping Underground Station during the morning and afternoon are provided in Table 2.2, along with the first and last services throughout the week.

Table 2.2 Epping Underground Station – Profile of Weekly Services

Time Period	Monday – Thursday	Friday	Saturday	Sunday
AM	5 services between: 05:39 and 09:08	10 services between: 00:13 and 09:08	7 services between: 00:13 and 06:28	4 services between: 08:32 and 09:24
PM	14 services between: 16:21 and 21:28	15 services between: 16:21 and 23:52	2 services between: 21:27 and 23:52	1 service at 20:01

- 2.20 As can be seen from the information presented in Table 2.2, services from Epping Underground Station towards, and through, Central London operate frequently throughout the week and therefore provide a useful travel alternative to the private car.
- 2.21 As Epping Underground Station is located approximately 3.5km to the southwest of the site, it is located within a reasonable cycling distance. Sheltered cycling parking spaces are provided at Epping Underground Station to accommodate for cyclists.
- 2.22 Moreover, the local bus services that can be boarded at the nearby bus stop to the site provide services towards the centre of Epping, where Epping Underground Station can then be reached within a short walk.

Local Highway Network

- 2.23 Adjacent to the site, Brickfield Road is a narrow, single carriageway road that provides private access to the site and a number of existing residential properties that front onto Brickfield Road.
- 2.24 Approximately 50m to the west of the existing site access, Brickfield Road forms part of the public highway and is a single carriageway two way road that is subject to a 30mph speed limit. Brickfield Road provides access to a number of residential properties and meets Coopersale Common at a priority T-junction to the west of the site.
- 2.25 Coopersale Common forms the primary northwest-southwest route throughout Coopersale and is a single carriageway two way road that is subject to a 30mph speed limit. Coopersale

Common benefits from good forward visibility, and intermittent on-street parking helps to reduce average vehicle speeds throughout Coopersale.

- 2.26 To the north, Coopersale Common provides access to a number of residential dwellings as well as providing access to the wider residential network via a number of minor road access junctions. The access roads are comprised primarily of simple priority T-junctions such as that with Parklands.
- 2.27 Approximately 630m to the north of the site, the character of Coopersale Common changes as it becomes subject to the National Speed Limit and meets with Epping Road at a simple priority T-junction.
- 2.28 To the north, Epping Road provides a route toward junction 7 of the M11 via Woodside and London Road. To the west, Epping Road provides a route through to the centre of Epping via the B1393, and south over the M25 toward destinations such as Loughton and Chigwell via the B1393 and High Road. To the east, Epping Road provides access to the nearby settlements of North Weald Bassett and Tyler's Green via the B181.
- 2.29 To the south of the Brickfield Road / Coopersale Common priority T-junction, Coopersale Common merges with Houblons Hill which provides an alternative route south out of Coopersale towards destinations such as Loughton via Coopersale Street, Stewards Green Road, Bridge Hill, Theydon Road and High Road. In addition, routes towards destinations such as Abridge and Chigwell can also be accessed from Stewards Green Road via Mount Road and Hobbs Cross Road respectively.

Local Facilities and Services

- 2.30 The location of the prospective allocation site adjacent to Brickfield Road is within a reasonable walking / cycling distance of a number of key facilities and services that any future residents of the allocation site will likely use on a daily basis.

- 2.31 A summary of these facilities as well as their approximate walking and cycling distances from the site is presented in Table 2.3.

Table 2.3 Summary of Walking and Cycling Distances to Local Facilities and Services

Destination	Approximate Distance from Site (kilometres)	Walk Time (minutes) Based on 3mph	Cycle Time (minutes) Based on 12mph
Coopersale and Theydon Garnon Church of England Primary School	0.13	2	<1
Coopersale Social Institute Hall	0.31	4	1
St Alban Coopersale Church	0.38	5	1
Coopersale Sub Post Office	0.45	6	1
Public House	0.48	6	2

- 2.32 Table 2.3 highlights a number of facilities and services which are available within a 1km radius of the prospective allocation site. The majority of these services can be reached within a 10 minute walk, or less than 5 minute cycle.
- 2.33 In addition, a number of additional facilities and services such as a shops, dentists and a doctor's surgery are located along Epping High Street approximately 2.5km to the south west of the site and are therefore within a reasonable cycling distance. In addition, the local bus services that can be accessed from the nearby bus stop on Coopersale Common provide a motorised link to the centre of Epping.
- 2.34 Any future residents of the site will therefore be afforded good levels of accessibility to services, which will help to reduce dependency on private cars as a means of transportation.
- 2.35 The nearest secondary school to the site is Epping St John's Church of England School. The secondary school can be accessed via bus service 383 which, as presented in Table 2.1, can be boarded from the nearby bus stop on Coopersale Common.

Local Travel Patterns

- 2.36 In order to gain an understanding of the existing travel patterns of residents within Coopersale, journey to work data from the 2011 Census has been analysed. The methods of travel to work from the Epping Forest output areas E00110523, E00110524, E00110525 and E00110526, which cover Coopersale, have been combined and are presented in Table 2.4.
- 2.37 The extents of the selected Epping Forest output areas are presented in **Figure 2.2** and are considered to be more representative of Coopersale than the wider Lower, or Middle Layer super output areas, which also incorporate hinterland and additional settlement surrounding Coopersale.

Table 2.4 Census 2011 Journey to Work Data

Travel Mode	Combined Epping Forest Output Areas
Train	20.4%
Bus	1.0%
Motorcycle	1.2%
Car Driver	64.6%
Car Passenger	3.6%
Cycle	0.8%
On Foot	5.9%
Other	2.6%
Total	100.0%

- 2.38 The data provided in Table 2.4 indicates that the majority of journeys to work from the area are made by private car (64.6%). A reasonable proportion of journeys to work are made by train (20.4%), whilst journeys to work by bus are less well represented (1.0%). Active modes of transport make up a small proportion of journeys to work (6.7%).
- 2.39 Origin and destination data obtained from the 2011 Census for the Epping Forest 006 super output area (mid layer) identified a number of key destinations to which residents travel for work with the following associated percentages:
- Epping Forest – 34.1%;
 - Harrow – 9.2%;
 - Waltham Forest – 6.9%;

- Redbridge – 6.6%; and
 - Broxbourne – 3.4%
- 2.40 The above percentages identify the Epping Forest district as a key work location for existing residents within Coopersale. A large proportion also work within Harrow (9.2%), Waltham Forest (6.9%), Redbridge (6.6%) and Redbridge (6.6%).
- 2.41 The full origin and destination data obtained from the 2011 Census is contained within **Appendix A**, and is discussed in more detail within Chapter 4 of this report.

Existing Car Ownership

- 2.42 The Census 2011 data has also been interrogated to establish existing car ownership levels for Coopersale. Car ownership data has been obtained for the same Epping Forest output areas as the Method of Travel to Work data.
- 2.43 The existing car ownership levels derived from the 2011 Census data is summarised in Table 2.5.

Table 2.5 Car Ownership for Coopersale Based on 2011 Census Data

Car Ownership per Household	Combined Output Areas (%)
No Cars or Vans	7.7%
1 Car or Van	46.8%
2 Cars or Vans	33.8%
3 Cars or Vans	7.4%
4 or More Cars or Vans	4.3%

- 2.44 The results presented in Table 2.5 show that the highest proportion of households own 1 vehicle or less (54.5%). A smaller proportion of households own 2 vehicles (33.8%) and the proportion of households that own 3 or more vehicles is small (11.7%).

3 ACCESS OPTIONS

- 3.1 This section of the report sets out the key principles for a residential development at the allocation site, along with options for access to the site by all modes.

Development Schedule

- 3.2 The site is allocated for development of 19 dwellings, though this number is assumed to include lands to the immediate west of the site in separate ownership and pertains to the primary school use. While 19 dwellings represents the District Council's draft allocation amount, it is possible for the site to accommodate more dwellings such that at least 28 single detached dwellings could be built. This amount would accord well with surrounding residential character and densities.
- 3.3 An indicative site Master Plan has been prepared for both a 19 dwelling, and 28 dwelling, development and these are presented in **Appendix B** and **Appendix C** respectively.

Access

- 3.4 Access to the site could be achieved from the existing private access to the site off Brickfield Road to the west, albeit with some improvements.
- 3.5 The existing access road could be upgraded to accommodate a 5.8m wide carriageway, which would then narrow to a minimum width of 4.12m prior to where Brickfield Road forms part of the public highway. The access would be constructed as a shared surface, and would accommodate 0.5m service strips on either side of the carriageway.
- 3.6 The proposed access road is presented in drawing number 1610-98 SK01 contained in **Appendix D**.
- 3.7 As the access road would be constructed as a shared surface, it would be suitable to accommodate pedestrian and cycle movements into the site. A gateway feature located at the transition point between the public highway and the shared surface access road would serve to alert drivers of the presence of a shared surface, and help to reduce vehicle speeds.
- 3.8 An additional pedestrian access point could potentially be achieved from Brickfield Road at the northeast corner of the allocation site. The pedestrian access would link to an internal estate road provided within the site.
- 3.9 An uncontrolled pedestrian crossing point, by way of dropped kerbs and tactile paving, is also to be provided across the mouth of the Brickfield Road priority T-junction. This is also displayed on drawing number 1610-98: SK01 contained in **Appendix D**.

Car Parking

- 3.10 Through analysis of the existing car ownership levels presented in Table 2.5, it is possible to provide an estimate on the level of car parking that may be required for a 19 dwelling development at the site.
- 3.11 This analysis is presented in Table 3.1.

Table 3.1 Car and Van Ownership Analysis (19 Dwellings)

Category	Combined Output Areas (%)	Number of Dwellings	Vehicles
No Cars / Vans	7.7%	2	0
1 Car / Van	46.8%	9	9
2 Cars / Vans	33.8%	6	12
3 Cars / Vans	7.4%	1	3
4 or More Cars / Vans	4.3%	1	4
Total	100.0%	19	28

- 3.12 As can be seen from the information presented in Table 3.1, a total of 28 car parking spaces may be required for a residential development of 19 dwellings at the site, based on existing levels of car ownership within Coopersale.

- 3.13 As the densification of the site to accommodate a 28 dwelling residential development could occur, an analysis has also been undertaken for this number of dwellings. This analysis is presented in Table 3.2.

Table 3.2 Car and Van Ownership Analysis (28 Dwellings)

Category	Combined Output Areas (%)	Number of Dwellings	Vehicles
No Cars / Vans	7.7%	2	0
1 Car / Van	46.8%	13	13
2 Cars / Vans	33.8%	10	18
3 Cars / Vans	7.4%	2	6
4 or More Cars / Vans	4.3%	1	4
Total	100.0%	28	43

- 3.14 As can be seen from the information presented in Table 3.2, a total of 43 car parking spaces may be required for a residential development of 28 dwellings at the site, based on existing levels of car ownership within Coopersale.

4 TRIP GENERATION AND DISTRIBUTION

4.1 This section of the report considers the quantum and distribution of trips that could be expected to be generated by a residential development at the allocation site.

4.2 In order to determine the likely level of traffic generated by a residential development at the site, the TRICS database has been investigated to determine person trip rates. Trip rates were determined using Land Use 03 – Residential, sub class A – Houses privately owned.

4.3 The following criteria were used to obtain a sample of sites similar to a 19, or 28, dwelling development at the prospective site:

- Multi modal surveys;
- Sites in Greater London, Wales, Scotland and Ireland were omitted;
- Weekday surveys only;
- Population within 1 mile below 20,000;
- Population within 5 miles below 100,000;
- Surveys dating back to 2008; and
- Development with dwelling numbers ranging from 10 to 30 were included.

4.4 In total, 6 sites within the TRICS database were considered comparably similar to a 19, or 28, dwelling residential development at the site. A full copy of the TRICS report is contained in **Appendix E**.

4.5 As a 19 dwelling development is what is being promoted by the District Council, a summary of the total person trip rates for the AM peak, PM peak and over a 12 hour period for this scale of development is presented in Table 4.1.

Table 4.1 Total Person Trip Rates

Mode	AM Peak (0800-0900)		PM Peak (1700-1800)		12 Hour (0700-1900)	
	Arrive	Depart	Arrive	Depart	Arrive	Depart
Person	0.196	0.776	0.813	0.327	4.019	4.159

4.6 The trip rates detailed in Table 4.1 have been used to calculate the number of person trips that may be generated by a 19 dwelling development at the site, the results of which are detailed in Table 4.2.

Table 4.2 Forecast Total Person Trips (19 Dwellings)

Mode	AM Peak (0800-0900)		PM Peak (1700-1800)		12 Hour (0700-1900)	
	Arrive	Depart	Arrive	Depart	Arrive	Depart
Person	4	15	15	6	76	79

- 4.7 As indicated in Table 4.2, application of the trips rates derived from the TRICS database suggests that a 19 dwelling development at the site may generate a total of 19 movements in the AM peak and 21 in the PM peak. Over a 12 hour period, a total of 76 arrivals and 79 departures could be expected.
- 4.8 To provide a robust modal share and trip generation information for a 19 dwelling development at the site, travel to work data for the Epping Forest 006 super output area (mid layer) has been interrogated for the 2011 Census. These local statistics have been applied to the total person trip generation to determine the likely travel mode characteristics of development trips. The modal share statistics for the main forms of transport and associated development trips are presented in Table 4.3.

Table 4.3 Forecast Trips by Travel Mode (19 Dwellings)

Mode	Combined Modal Split	AM Peak (0800-0900)		PM Peak (1700-1800)	
		Arrive	Depart	Arrive	Depart
Train	20.4%	1	3	3	2
Bus	1.0%	0	0	0	0
Motorcycle	1.2%	0	0	0	0
Car Driver	64.6%	3	10	10	4
Car Passenger	3.6%	0	1	1	0
Cycle	0.8%	0	0	0	0
On Foot	5.9%	0	1	1	0
Other	2.6%	0	0	0	0
Total	100.0%	4	15	15	6

- 4.9 The analysis presented in Table 4.3 suggests that a total of 13 vehicular movements in the AM peak, and 14 in the PM peak may be generated by a 19 dwelling development at the site. Broadly this equates to one car every 4 minutes in the AM and PM peak periods respectively. In the context of the existing traffic volumes on Brickfield Road and Coopersale Common, it is unlikely that the traffic associated with a 19 dwelling development at the site will have any material impact upon the operation of the local highway network.
- 4.10 The development of 28 dwellings is considered to represent a more sustainable and efficient development of the site given the fact that surrounding housing densities are built out at this, or even higher, levels of density. Therefore a TRICS analysis related to 28 dwellings has also been undertaken, utilising the total person trip rates presented in Table 4.1.
- 4.11 A forecast of the number of total person trips related to a 28 dwelling development is presented in Table 4.4.

Table 4.4 Forecast Total Person Trips (28 Dwellings)

Mode	AM Peak (0800-0900)		PM Peak (1700-1800)		12 Hour (0700-1900)	
	Arrive	Depart	Arrive	Depart	Arrive	Depart
Person	5	22	23	9	113	116

- 4.12 The resulting modal share and trip generation information for this level of total person trips is presented in Table 4.5.

Table 4.5 Forecast Trips by Travel Mode (28 Dwellings)

Mode	Combined Modal Split	AM Peak (0800-0900)		PM Peak (1700-1800)	
		Arrive	Depart	Arrive	Depart
Train	20.4%	1	5	5	2
Bus	1.0%	0	0	0	0
Motorcycle	1.2%	0	0	0	0
Car Driver	64.6%	4	14	15	6
Car Passenger	3.6%	0	1	1	0
Cycle	0.8%	0	0	0	0
On Foot	5.9%	0	1	1	1
Other	2.6%	0	1	1	0
Total	100.0%	5	22	23	9

- 4.13 The analysis presented in Table 4.5 suggests that a total of 18 vehicular movements in the AM peak, and 21 in the PM peak may be generated by a 28 dwelling development at the site. Broadly this equates to one car every 3 minutes in the AM and PM peak periods respectively. This constitutes an increase of approximately 5 vehicles in the AM peak, and 7 vehicles in the PM peak from a 19 dwelling development at the site. This level of traffic generation is unlikely to cause a material impact upon the operation of the local highway network.

Vehicular Trip Distribution

- 4.14 In order to provide an indication of the likely vehicular trip distribution, origin and destination data from the 2011 Census has been used. This data incorporates the local of usual residence and place of work by method of travel.
- 4.15 The Epping Forest 006 super output area (mid layer), which incorporates Coopersale, has been used as a proxy by which to assess the distribution of future development trips by vehicle.
- 4.16 Journeys to the surrounding local authority districts have been assessed to determine the likely distribution of residential trips, external to the allocation site. The likely distribution of key destinations is detailed in Table 4.6.

Table 4.6 Distribution of Super Output Area Vehicle Trips

Destination	Distribution
Epping Forest	34.1%
Harrow	9.2%
Waltham Forest	6.9%
Redbridge	6.6%
Broxbourne	3.4%
Other	39.8%

- 4.17 The results indicate that the majority of vehicle trips from the allocation site are likely to travel within Epping Forest (34.1%). Harrow (9.2%), Waltham Forest (6.9%) and Redbridge (6.6%) are likely to account for a significant proportion of trips.
- 4.18 Additional assessment of vehicle trips within the Epping Forest district has been undertaken. The assessment determined that approximately 7.8% of vehicle trips within the Epping Forest district may journey toward the destinations of Thornwood Common and northwest Epping. Approximately 6.7% of trips will stay within Coopersale and southwest Epping, 3.0% of trips may travel to northeast Loughton and 2.6% of trips may travel to Hastingwood and North Weald.
- 4.19 The likely destinations have been assigned to routes in order to assess the distribution of trips across the highway network. This initial analysis, which determines the likely route to each destination is presented in Table 4.7.

Table 4.7 Likely Local Route Distribution

Route	Distribution
Coopersale Common (NB) + Epping Road (EB) + Woodside (NW)	28.9%
Coopersale Common (NB) + Epping Road (WB) + Lindesey Street (NWB)	1.1%
Coopersale Common (NB) + Epping Road (EB)	4.0%
Houblons Hill (SB) + Mount Road (EB)	5.1%
Coopersale Common (NB) + Epping Road (WB) + High Road (SWB)	18.5%
Houblons Hill (SB) + Stewards Green Road (WB) + High Road (SWB)	9.5%
Houblons Hill (SB) + Mount Road (EB) + Hobbs Cross Road (SB)	32.9%

- 4.20 The data presented in Table 4.7 indicates that the majority of journeys from the allocation site (32.9%) will be routed south along Houblons Hill before travelling east along Mount Road and south along Hobbs Cross Road. A large proportion of journeys (28.9%) will route north along Coopersale Common before travelling east along Epping Road and northwest along Woodside. Approximately 18.5% of journeys will route north along Coopersale Common before travelling west along Epping Road and southwest along High Road.
- 4.21 The distribution data presented in Table 4.7 has been used to assess the distribution of any potential residential traffic. This analysis has been undertaken for the purposes of a 19 dwelling development at the allocation site, and a summary is presented in Table 4.8.

Table 4.8 Allocation Site Traffic Distribution

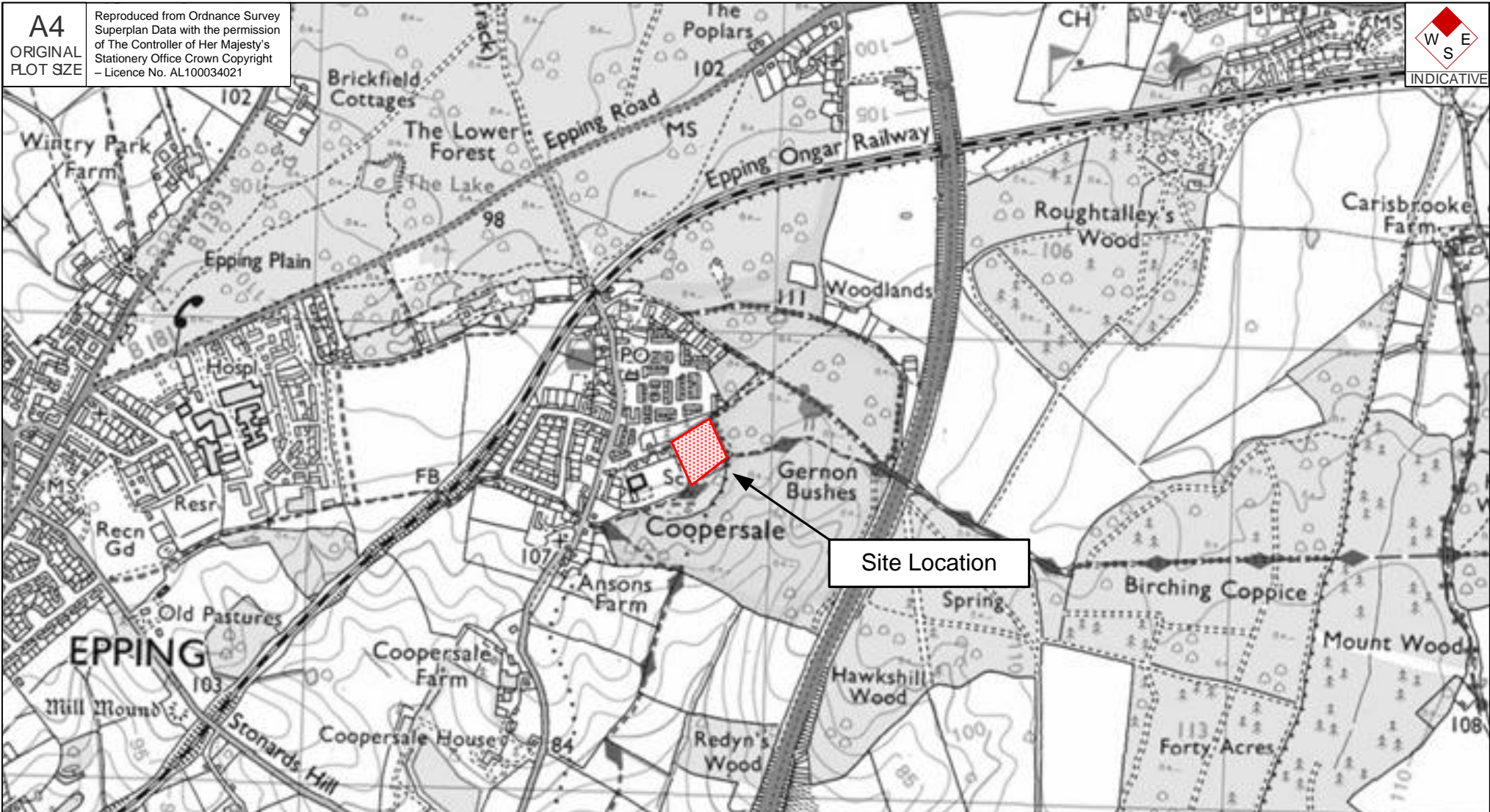
Development Traffic Route	Distribution	AM Peak (0800-0900)		PM Peak (1700-1800)	
		Arrive	Depart	Arrive	Depart
Coopersale Common (NB) + Epping Road (EB) + Woodside (NW)	28.9%	1	3	3	1
Coopersale Common (NB) + Epping Road (WB) + Lindesey Street (NWB)	1.1%	0	0	0	0
Coopersale Common (NB) + Epping Road (EB)	4.0%	0	0	0	0
Houblons Hill (SB) + Mount Road (EB)	5.1%	0	1	1	0
Coopersale Common (NB) + Epping Road (WB) + High Road (SWB)	18.5%	1	2	2	1
Houblons Hill (SB) + Stewards Green Road (WB) + High Road (SWB)	9.5%	0	1	1	0
Houblons Hill (SB) + Mount Road (EB) + Hobbs Cross Road (SB)	32.9%	1	3	3	2
Total	100.0%	3	10	10	4

- 4.22 The results indicate that a total of 5 vehicle departures during the AM peak may be expected to travel north along Coopersale Common, with a further 5 departures expected to travel south along Houblons Hill.
- 4.23 During the PM peak, a total of 5 vehicle arrivals could be expected to arrive from the south via Houblons Hill, with a further 5 arrivals arriving from the north via Coopersale Common.
- 4.24 The initial traffic distribution analysis has determined that there is likely to be a relatively balanced proportion of trips that travel north, and south, out of Coopersale.

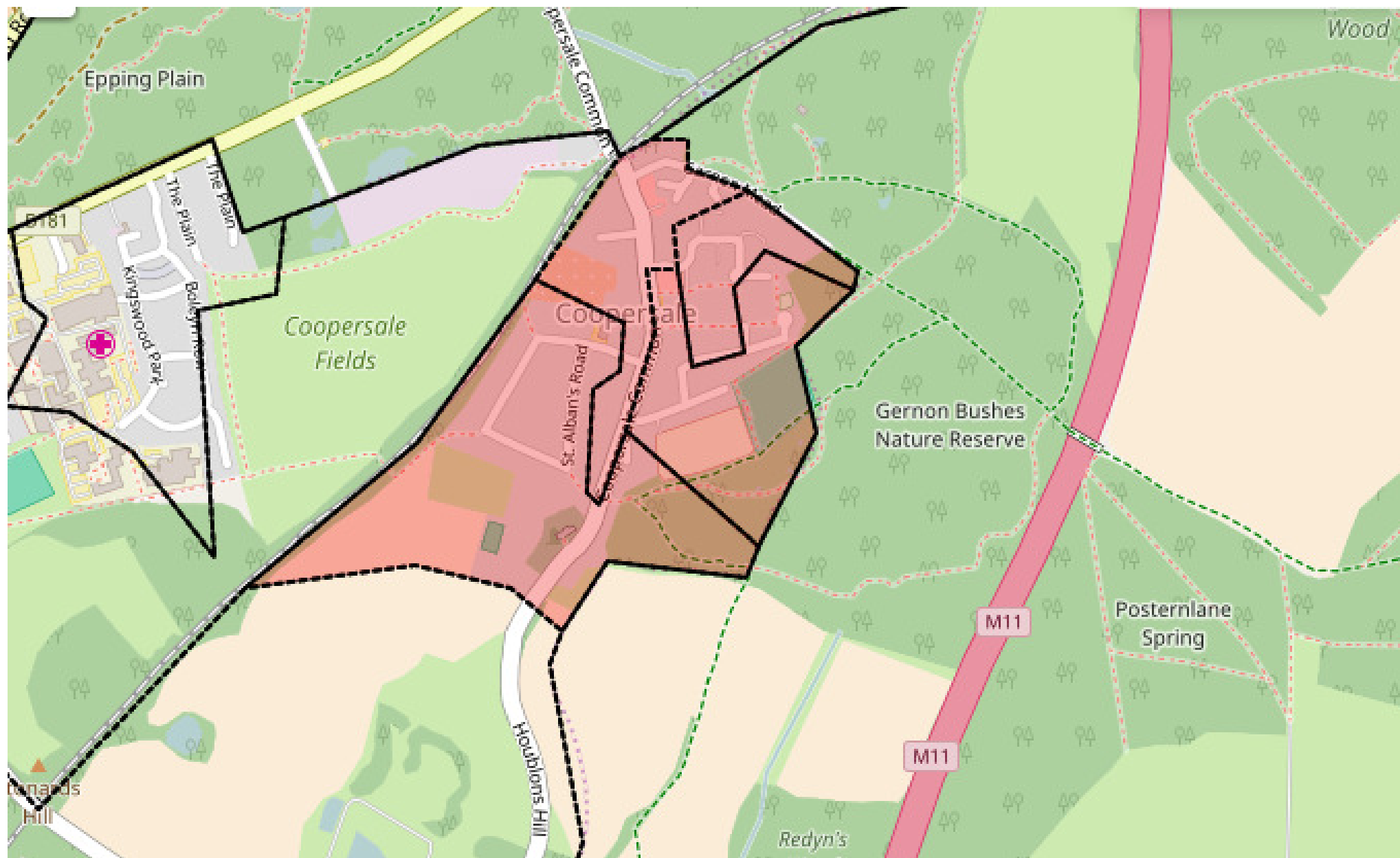
5 SUMMARY

- 5.1 This report has assessed the sustainable travel opportunities of the allocation site for non-car modes of transport and has shown that the site is accessible on foot and via cycle, with suitable access to passenger transport modes.
- 5.2 The allocation site is located within a reasonable walking and cycling distance to some key facilities and services including a post office and a local primary school.
- 5.3 In addition, a number of additional facilities and services, such as a doctor's surgery, are located on Epping high street approximately 2.5km to the west of the allocation site. These services are within a reasonable cycling distance from the site and can also be accessed via the local bus services that can be boarded at the nearby local bus stop on Coopersale Common.
- 5.4 Given the level of connectivity of the site via modes such as walking and public transport, it is considered that use of sustainable travel will be achievable and realistic.
- 5.5 The analysis presented in Chapter 5 suggests that a residential development of up to 19, or 28, dwellings at the allocation site may generate a low number of person trips.
- 5.6 The initial distribution analysis has indicated that the proportion of development trips that travel north, or south, out of Coopersale will be relatively balanced.

FIGURES



<div> <div> <div>Bristol</div> <div>Cambridge</div> <div>Cardiff</div> <div>London</div> <div>Oxford</div> <div>Welwyn Garden City</div> </div> <div> <div> <div>Sheraton House</div> <div>Castle Park</div> <div>Cambridge</div> <div>CB3 0AX</div> </div> <div> <div>01223 370135</div> <div>www.tpa.uk.com</div> </div> </div> </div> <div> <div> <div> <div>tpa</div> <div>Transport Planning Associates</div> </div> </div> </div>	Land at Cooper'sale Cricket Club, Cooper'sale	STATUS: INFORMATION			
	Site Location	SCALE: NTS	PREPARED BY: LM	CHECKED BY: BB	APPROVED BY: IB
	Carter Jonas (Cambridge)	JOB NO: 1610-98	FIGURE NO: Figure 2.1	DATE: Dec '16	



APPENDIX A

WU03EW - Location of usual residence and place of work by method of travel to work (MSOA level)
ONS Crown Copyright Reserved [from Nomis on 29 November 2016]

population All usual residents aged 16 and over in employment the week before the census
units Persons
date 2011
usual residence E02004532 : Epping Forest 006 (2011 super output area - middle layer)

place of work : 2011 census merged local authority district	All categories: Method of travel to work (2001 specification)	Work mainly at or from home	Underground, metro, light rail or tram	Train	Bus, minibus or coach	Taxi	Motorcycle, scooter or moped	Driving a car or van	Passenger in a car or van	Bicycle	On foot	Other method of travel to work	% of private car travel
Epping Forest	728	0	53	13	9	8	5	422	38	6	172	2	34.1%
Harlow	140	0	1	1	19	0	2	114	3	0	0	0	9.2%
Waltham Forest	107	0	14	3	1	0	0	85	3	1	0	0	6.5%
Redbridge	110	0	15	6	0	1	0	82	3	1	2	0	6.6%
Broxbourne	46	0	2	0	0	0	0	42	1	0	1	0	3.4%
Newham	58	0	12	4	0	0	1	38	2	1	0	0	3.1%
Enfield	37	0	1	0	0	0	0	35	1	0	0	0	2.8%
Tower Hamlets	164	0	121	7	2	0	1	32	0	0	0	1	2.6%
Havering	34	0	1	0	0	0	0	31	2	0	0	0	2.5%
Barking and Dagenham	29	0	0	0	0	0	0	27	2	0	0	0	2.2%
Uttlesford	29	0	2	0	0	0	0	26	1	0	0	0	2.1%
East Hertfordshire	26	0	1	0	1	0	0	23	1	0	0	0	1.9%
Brentwood	29	0	0	0	3	0	1	22	2	0	1	0	1.8%
Westminster, City of	430	0	380	18	1	0	7	20	2	2	0	0	1.6%
Basilston	19	0	0	0	0	0	0	19	0	0	0	0	1.5%
Chelmsford	21	0	0	0	0	0	0	19	0	0	2	0	1.5%
Welwyn Hatfield	14	0	0	0	0	0	0	14	0	0	0	0	1.1%
Haringey	17	0	1	0	0	0	2	13	0	1	0	0	1.1%
Camden	103	0	85	4	0	0	2	11	0	1	0	0	0.9%
Thurrock	12	0	1	1	0	0	1	9	0	0	0	0	0.7%
Hertsmere	10	0	1	0	0	0	0	9	0	0	0	0	0.7%
Hackney	36	0	25	2	0	0	0	9	0	0	0	0	0.7%
Southwark	49	0	37	3	0	0	1	8	0	0	0	0	0.6%
Braintree	7	0	0	0	0	0	0	7	0	0	0	0	0.6%
Barnet	10	0	2	0	1	0	0	7	0	0	0	0	0.6%
St Albans	8	0	1	1	0	0	0	6	0	0	0	0	0.5%
Stevenage	6	0	0	0	0	0	0	6	0	0	0	0	0.5%
Islington	64	0	51	4	1	0	1	6	0	0	1	0	0.5%
Luton	5	0	1	0	0	0	0	4	0	0	0	0	0.3%
South Cambridgeshire	5	0	0	0	0	0	1	4	0	0	0	0	0.3%
Colchester	4	0	0	0	0	0	0	4	0	0	0	0	0.3%
Brent	5	0	1	0	0	0	0	4	0	0	0	0	0.3%
Ealing	6	0	2	0	0	0	0	4	0	0	0	0	0.3%
Hillingdon	5	0	0	0	0	0	0	4	0	0	1	0	0.3%
Hounslow	7	0	2	0	0	0	0	4	1	0	0	0	0.3%
Cambridge	4	0	0	0	0	0	1	3	0	0	0	0	0.2%
Maldon	4	0	1	0	0	0	0	3	0	0	0	0	0.2%
North Hertfordshire	3	0	0	0	0	0	0	3	0	0	0	0	0.2%
Three Rivers	3	0	0	0	0	0	0	3	0	0	0	0	0.2%
Ipswich	3	0	0	0	0	0	0	3	0	0	0	0	0.2%
Kensington and Chelsea	17	0	14	0	0	0	0	3	0	0	0	0	0.2%
Merton	3	0	0	0	0	0	0	3	0	0	0	0	0.2%
Surrey Heath	3	0	0	0	0	0	0	3	0	0	0	0	0.2%
East Cambridgeshire	2	0	0	0	0	0	0	2	0	0	0	0	0.2%
Dacorum	2	0	0	0	0	0	0	2	0	0	0	0	0.2%
Forest Heath	2	0	0	0	0	0	0	2	0	0	0	0	0.2%
Bexley	2	0	0	0	0	0	0	2	0	0	0	0	0.2%
Hammersmith and Fulham	12	0	9	1	0	0	0	2	0	0	0	0	0.2%
Slough	2	0	0	0	0	0	0	2	0	0	0	0	0.2%
Windsor and Maidenhead	2	0	0	0	0	0	0	2	0	0	0	0	0.2%
Milton Keynes	2	0	0	0	0	0	0	2	0	0	0	0	0.2%
Runnymede	2	0	0	0	0	0	0	2	0	0	0	0	0.2%
Cheshire East	1	0	0	0	0	0	0	1	0	0	0	0	0.1%
Bolton	1	0	0	0	0	0	0	1	0	0	0	0	0.1%
Bury	1	0	0	0	0	0	0	1	0	0	0	0	0.1%
Herefordshire, County of	1	0	0	0	0	0	0	1	0	0	0	0	0.1%
Stoke-on-Trent	1	0	0	0	0	0	0	1	0	0	0	0	0.1%
Southend-on-Sea	1	0	0	0	0	0	0	1	0	0	0	0	0.1%
Castle Point	1	0	0	0	0	0	0	1	0	0	0	0	0.1%
Watford	1	0	0	0	0	0	0	1	0	0	0	0	0.1%
Babergh	1	0	0	0	0	0	0	1	0	0	0	0	0.1%
Bromley	1	0	0	0	0	0	0	1	0	0	0	0	0.1%
Croydon	2	0	1	0	0	0	0	1	0	0	0	0	0.1%
Greenwich	1	0	0	0	0	0	0	1	0	0	0	0	0.1%
Harrow	1	0	0	0	0	0	0	1	0	0	0	0	0.1%
Kingston upon Thames	1	0	0	0	0	0	0	1	0	0	0	0	0.1%
Lambeth	15	0	12	2	0	0	0	1	0	0	0	0	0.1%
Medway	2	0	0	1	0	0	0	1	0	0	0	0	0.1%
South Bucks	1	0	0	0	0	0	0	1	0	0	0	0	0.1%
Maldstone	1	0	0	0	0	0	0	1	0	0	0	0	0.1%
Sevenoaks	1	0	0	0	0	0	0	1	0	0	0	0	0.1%
Spelthorne	1	0	0	0	0	0	0	1	0	0	0	0	0.1%
Horsham	2	0	0	0	0	0	0	1	0	0	1	0	0.1%
Mid Sussex	1	0	0	0	0	0	0	1	0	0	0	0	0.1%
Bristol, City of	1	0	0	0	0	0	0	1	0	0	0	0	0.1%
Wiltshire	1	0	0	0	0	0	0	1	0	0	0	0	0.1%

1,236

In order to protect against disclosure of personal information, records have been swapped between different geographic areas. Some counts will be affected, particularly small counts at the lowest geographies.

APPENDIX B

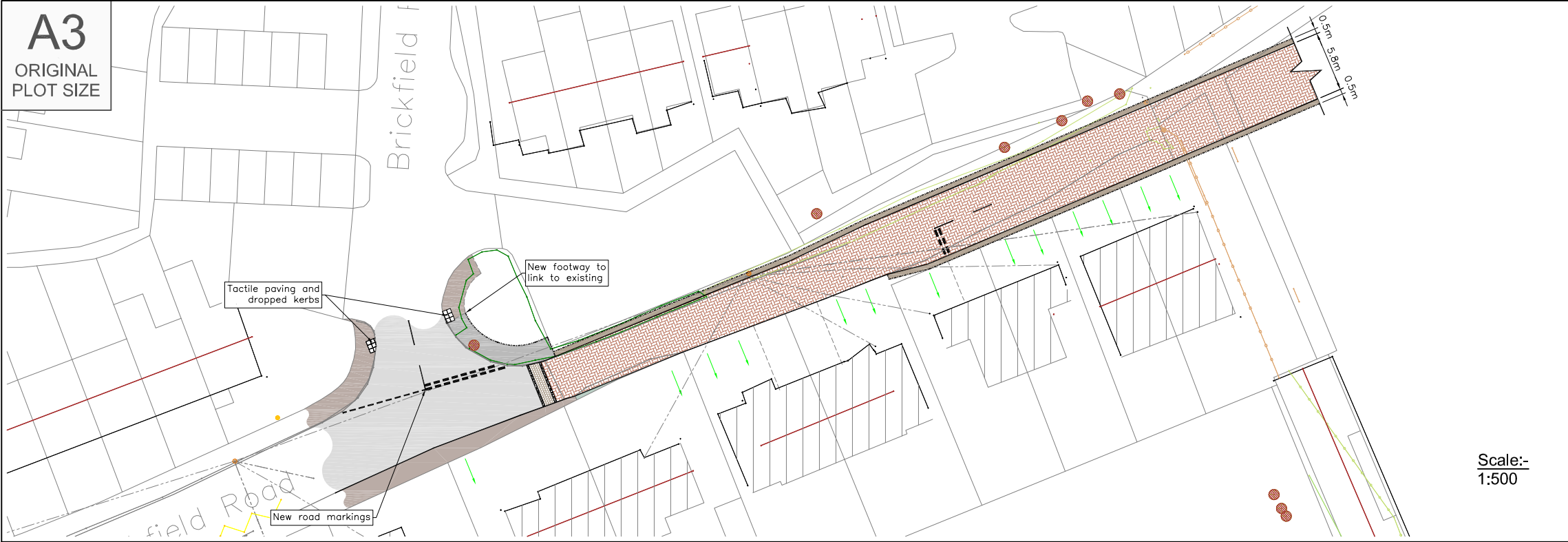


Option 1: 19 dwellings

**November 2016
Scale 1:1,000 @ A3**

APPENDIX C

APPENDIX D



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NOTES:
1. Subject to confirmation of Highway Boundary.

KEY

Existing driveway access.

A	07.12.16	Plan amended to topo base	JA	BB	IB
Rev	Date	Details	Drawn by	Checked by	Approved by

Bristol
Cambridge
Cardiff
London
Oxford
Welwyn Garden City



Sheraton House
Castle Park
Cambridge
CB3 0AX
01223 370135
www.tpa.uk.com

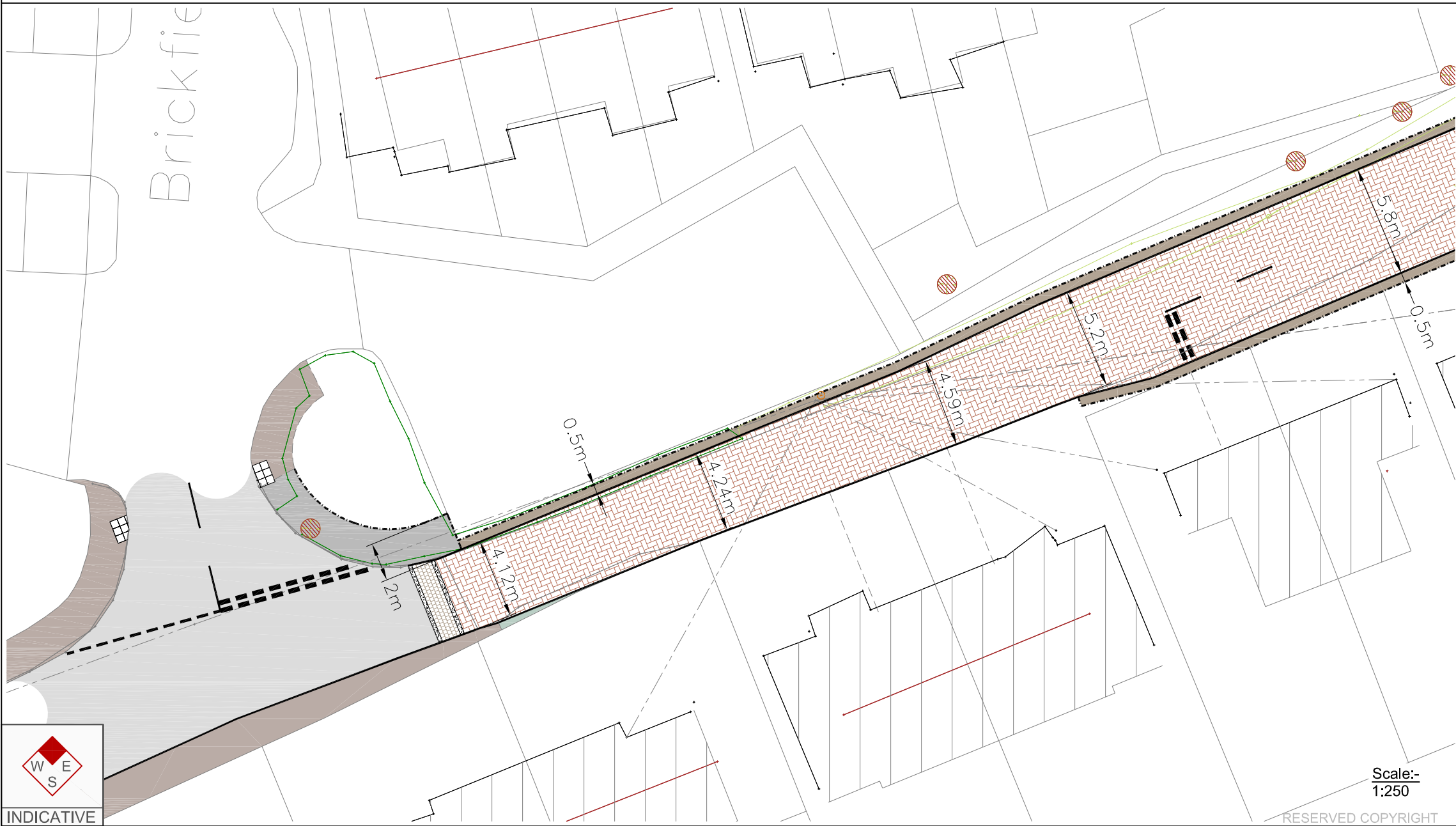
CLIENT:
Carter Jonas

PROJECT:
**Land at
Coopersale Cricket Club,
Coopersale**

TITLE:
Access Arrangement

STATUS:
FEASIBILITY

SCALE: As Shown	DATE: 28.11.16	DRAWN: JA	CHECKED: JC	APPROVED: JC
JOB NO: 1610-98		DRAWING NO: SK01		REVISION: A



W

E

S

INDICATIVE

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APPENDIX E

Calculation Reference: AUDIT-219603-161130-1116

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
 Category : A - HOUSES PRIVATELY OWNED
 MULTI-MODAL VEHICLES

Selected regions and areas:

04	EAST ANGLIA	
	NF NORFOLK	1 days
	SF SUFFOLK	1 days
05	EAST MIDLANDS	
	LN LINCOLNSHIRE	1 days
06	WEST MIDLANDS	
	SH SHROPSHIRE	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE	
	NY NORTH YORKSHIRE	1 days
08	NORTH WEST	
	CH CHESHIRE	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Filtering Stage 2 selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Number of dwellings
 Actual Range: 10 to 24 (units:)
 Range Selected by User: 10 to 30 (units:)

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/08 to 16/09/15

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	1 days
Tuesday	1 days
Wednesday	3 days
Friday	1 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	6 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaken using machines.

Selected Locations:

Suburban Area (PPS6 Out of Centre)	1
Edge of Town	5

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Residential Zone	5
No Sub Category	1

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Filtering Stage 3 selection:

Use Class:

C3

6 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 1 mile:

1,001 to 5,000

1 days

5,001 to 10,000

1 days

10,001 to 15,000

4 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

5,001 to 25,000

1 days

25,001 to 50,000

1 days

50,001 to 75,000

1 days

75,001 to 100,000

3 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0

3 days

1.1 to 1.5

3 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

No

6 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

LIST OF SITES relevant to selection parameters

1	CH-03-A-09 GREYSTOKE ROAD HURDSFIELD MACCLESFIELD Edge of Town Residential Zone Total Number of dwellings: 24 Survey date: MONDAY 24/11/14	TERRACED HOUSES	CHESHIRE	Survey Type: MANUAL
2	LN-03-A-03 ROOKERY LANE BOULTHAM LINCOLN Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 22 Survey date: TUESDAY 18/09/12	SEMI DETACHED	LINCOLNSHIRE	Survey Type: MANUAL
3	NF-03-A-03 HALING WAY THETFORD Edge of Town Residential Zone Total Number of dwellings: 10 Survey date: WEDNESDAY 16/09/15	DETACHED HOUSES	NORFOLK	Survey Type: MANUAL
4	NY-03-A-11 HORSEFAIR BOROUGHBRIDGE Edge of Town Residential Zone Total Number of dwellings: 23 Survey date: WEDNESDAY 18/09/13	PRIVATE HOUSING	NORTH YORKSHIRE	Survey Type: MANUAL
5	SF-03-A-05 VALE LANE BURY ST EDMUNDS Edge of Town Residential Zone Total Number of dwellings: 18 Survey date: WEDNESDAY 09/09/15	DETACHED HOUSES	SUFFOLK	Survey Type: MANUAL
6	SH-03-A-03 SOMERBY DRIVE BICTON HEATH SHREWSBURY Edge of Town No Sub Category Total Number of dwellings: 10 Survey date: FRIDAY 26/06/09	DETACHED	SHROPSHIRE	Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
NF-03-A-01	Bungalows
SH-03-A-06	Bungalows
WK-03-A-02	Bungalows

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL VEHICLES

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	6	18	0.121	6	18	0.327	6	18	0.448
08:00 - 09:00	6	18	0.093	6	18	0.383	6	18	0.476
09:00 - 10:00	6	18	0.121	6	18	0.187	6	18	0.308
10:00 - 11:00	6	18	0.168	6	18	0.140	6	18	0.308
11:00 - 12:00	6	18	0.121	6	18	0.150	6	18	0.271
12:00 - 13:00	6	18	0.150	6	18	0.150	6	18	0.300
13:00 - 14:00	6	18	0.140	6	18	0.150	6	18	0.290
14:00 - 15:00	6	18	0.131	6	18	0.159	6	18	0.290
15:00 - 16:00	6	18	0.224	6	18	0.234	6	18	0.458
16:00 - 17:00	6	18	0.224	6	18	0.159	6	18	0.383
17:00 - 18:00	6	18	0.467	6	18	0.178	6	18	0.645
18:00 - 19:00	6	18	0.280	6	18	0.131	6	18	0.411
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.240			2.348			4.588

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

Parameter summary

Trip rate parameter range selected:	10 - 24 (units:)
Survey date range:	01/01/08 - 16/09/15
Number of weekdays (Monday-Friday):	6
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	3

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
 MULTI-MODAL TOTAL PEOPLE
 Calculation factor: 1 DWELLS
 BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	6	18	0.140	6	18	0.598	6	18	0.738
08:00 - 09:00	6	18	0.196	6	18	0.776	6	18	0.972
09:00 - 10:00	6	18	0.159	6	18	0.318	6	18	0.477
10:00 - 11:00	6	18	0.271	6	18	0.290	6	18	0.561
11:00 - 12:00	6	18	0.224	6	18	0.252	6	18	0.476
12:00 - 13:00	6	18	0.290	6	18	0.234	6	18	0.524
13:00 - 14:00	6	18	0.271	6	18	0.224	6	18	0.495
14:00 - 15:00	6	18	0.290	6	18	0.280	6	18	0.570
15:00 - 16:00	6	18	0.505	6	18	0.421	6	18	0.926
16:00 - 17:00	6	18	0.458	6	18	0.252	6	18	0.710
17:00 - 18:00	6	18	0.813	6	18	0.327	6	18	1.140
18:00 - 19:00	6	18	0.402	6	18	0.187	6	18	0.589
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			4.019			4.159			8.178

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

Parameter summary

Trip rate parameter range selected: 10 - 24 (units:)
 Survey date range: 01/01/08 - 16/09/15
 Number of weekdays (Monday-Friday): 6
 Number of Saturdays: 0
 Number of Sundays: 0
 Surveys automatically removed from selection: 0
 Surveys manually removed from selection: 3

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.